

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 August 2005 (11.08.2005)

PCT

(10) International Publication Number
WO 2005/072159 A2

(51) International Patent Classification: Not classified

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:

PCT/US2005/000136

(22) International Filing Date: 4 January 2005 (04.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIGO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(30) Priority Data:

60/534,214 5 January 2004 (05.01.2004) US
60/554,102 18 March 2004 (18.03.2004) US

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(71) Applicant and

(72) Inventor: DELAGRAVE, Simon [US/US]; 709 Spencer Road, Avondale, PA 19311 (US).

(74) Agent: GODDARD, Christine, A.; Cozen O'Connor, P.C., 1900 Market Street, Philadelphia, PA 19103 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,



WO 2005/072159 A2

(54) Title: BIOTHERAPEUTICS, DIAGNOSTICS AND RESEARCH REAGENTS

(57) Abstract: The present invention relates in general to real-time analysis of electrochemical deposition (ECD) metal plating solutions, for the purpose of reducing plating defects and achieving high quality metal deposition. The present invention provides various new electrochemical analytical cell designs for reducing cross-contamination and increasing analytical signal strength. The present invention also provides improved plating protocols for increasing potential signal strength and reducing the time required for each measurement cycle. Further, the present invention provides new methods and algorithms for simultaneously determining concentrations of suppressor, accelerator, and leveler in a sample ECD solution within three experimental runs. A particularly preferred embodiment of the present invention provides a method for simultaneously determining concentrations of all three organic additives within a single experimental run by using a single analytical cell, while interactions between such additives are properly accounted for.